

**SEX ATTRACTANT FOR A PLUME MOTH, *OIDAEMATOPHORUS*
MONODACTYLUS (L.) (LEPIDOPTERA: PTEROPHORIDAE)^{1,2}**

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Oidaematophorus monodactylus (L.) is a member of the family Pterophoridae (plume moths), primarily leaf rollers or stem borers that feed on a wide range of host plants (Barnes and Lindsey, 1921; Lange, 1950). *O. monodactylus* may be useful as a biological control agent of bindweeds, *Convolvulus* spp., since large releases of larvae limit growth of hedge bindweed (Parrella and Kok, 1978). Other members of the family are agricultural pests, such as the artichoke plume moth *Platyptilia carduidactyla* (Riley) (Lange, 1942). A sex attractant for these species would provide a simple way to detect and assess populations in the field.

The present paper describes the relative attractiveness to male *O. monodactylus* of certain aldehydes and mixtures of aldehydes with other compounds during field tests made in search for sex attractants of Lepidoptera pests of commercial grass seed production.

Materials and Methods

Field tests were conducted near Albany (1977) and Imbler (1978), Oregon, in commercial fields of bluegrass bordered by fence rows along which weeds (including field bindweed) and shrubs were growing.

The test compounds were obtained from Farchan Division of Story Chemical Company, Willoughby, OH, and were used as received. These compounds contained 1–3 percent of the geometrical isomer. Test compounds were dissolved in dichloromethane and impregnated into No. 1 red rubber septa (West Company, Phoenixville, PA) (Maitlen et al., 1976). Four replicates of each bait and unbaited control traps were randomly dispersed in the field and rerandomized daily. Each bait was exposed 2–4 days in the field in Pherocon® 1 C traps suspended from wire stakes so the traps were just above the canopy of grass.

Table 1. Mean daily catch per trap of male *O. monodactylus*.

	$\mu\text{g/dispenser}$	\bar{x} males/ trap	Date
<i>1977 Albany, Oregon</i>			
(Z)-11-hexadecenal + (E)-11-hexadecenal	800:200	0.5	June 25–26
(Z)-11-hexadecenal + (Z)-7-hexadecenal + (Z)-7-dodecen-1-ol acetate	800:200:1000	0.5	June 29–30
(Z)-11-hexadecenal + (Z)-11-hexadecen-1-ol acetate + (Z)-7-dodecen-1-ol acetate	1000:1000:1000	1	July 27– Aug 8
<i>1978 Imbler, Oregon</i>			
(E)-7-dodecenal	1000	0.5	June 15–19
(Z)-11-hexadecenal + (Z)-11-hexadecen-1-ol acetate	1000:1000	1.8	June 20–23
(Z)-11-hexadecenal + (Z)-11-hexadecen-1-ol acetate + (Z)-7-dodecen-1-ol acetate	500:400:100	1	June 20–23
(Z)-9-dodecenal	1000	12	June 15–19
(Z)-9-dodecenal	1000	28	June 5–8

Results and Discussion

Only baits that were aldehydes or mixtures of aldehydes and acetates were attractive to *O. monodactylus* (Table 1). None of the unbaited check traps caught moths. Relative to the other test compounds, (Z)-9-dodecenal was highly attractive but only to males. No virgin females were available to use as trap bait, and therefore the efficiency of (Z)-9-dodecenal as an attractant was not determined. Nevertheless, a low dosage of this aldehyde was effective, so the compound may be a primary component of the sex pheromone of *O. monodactylus* (Roelofs and Cardé, 1977). However, (E)-9-dodecenal was 1–3 percent of the test bait and may increase or decrease trap catch. Often, one or more secondary components may be required for optimum trap catch. The other baits attracted less than two males per trap, so they are probably not pheromone components. However, they were slightly attractive, which may indicate a general sensitivity of the species to aldehydes.

One approach to obtaining attractants for insects is the systematic testing of compounds and mixtures in the field (Underhill et al., 1977). They found aldehydes were common constituents of the sex attractants of certain taxa and that a specific aldehyde often is a pheromone component of several related species. Since (Z)-9-dodecenal is the first sex attractant reported for a plume moth, a similar approach may be useful in identifying attractants for other species of the Pterophoridae.

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Footnotes

¹ Contribution of Agricultural Research, SEA, USDA in cooperation with the Agricultural Experiment Station, Oregon State University. Technical Paper No. 5056 of the latter.

² Mention of a commercial or proprietary product in the paper does not constitute an endorsement of this product by the USDA.